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Some Remarks on the Diseases of the Stomachs of Cattle.*

By H. Taylor, F.R.C.V.S., Hayward's Heath.

These general remarks on the stomach diseases of cattle are intended to bring out certain salient features in considering them, leaving others to be taken for granted. Let me remark that this paper does not pretend to be a full account of all there is to be said on the diseases of the stomachs, but only to outline such points as are suitable for a short paper. The first point to which considerable importance is to be attached, in my judgment, is the influence of the nerve supply in producing symptoms, though one should not make the mistake of neglecting or not attributing anything to the food supply. Moreover, it should be noted that it is sometimes extremely difficult to rouse the activity of the stomach and intestines of cattle. An ordinary purgative sometimes has little or no effect, and the question arises, is it better to wait for the parts to recover their tone, or resort at once to extreme measures? In my opinion, the former is the preferable mode of action. As instancing the influence of what one might call outside influences upon the stomach, take the cases of "redwater," "milk fever," and "metroperitonitis." In redwater there is an obstinate constipation, which is not due to impaction, but to paralysis of the stomach and intestines. This is followed, later on, by diarrhœa. Cases of redwater in which one does not come across the diagnostic symptom, because it is unsuspected, are misleading, since they simulate torpidity of the stomach and intestines from an ordinary cause. I speak from experience. In milk fever for a time the muscular walls of the viscera are as impotent as the skeletal muscles, and one is rather apt to neglect assisting the recovery by administration of a laxative as soon as the cow is up. It is sound practice to hasten the action of the stomachs and intestines. In metroperitonitis, due to infection from the uterus, there is again an interference with the movements of the abdominal viscera, and a mistaken diagnosis may be made since the abdomen appears distended.

There is also another class of diseases which should be borne in mind in the consideration of those of the stomachs. I refer to those cases which come more under the head of poisoning, not the acute kind, but those in which the active agent is perhaps cumulative, and in which symptoms, say, of abdominal pain are developed some considerable period after the deleterious substance has been excluded from the food. Two very good examples would be bracken poisoning and poisoning by soya bean meal after extraction of the oil by trichlorethylene. In the latter example Sir Stewart Stockman, in the *Journal of Comp. Path. and Therap.*, June, 1916, found that "in 65 per cent. of the affected animals on the farms, illness did not appear until from 2 to 28 days after feeding of the meal had been discontinued."

One must, therefore, beware of the possibility of such things.

The present seems an opportune time to discuss these diseases, as there is a tendency nowadays to forced feeding for the production of an extra quantity of milk. Moreover, there has come into existence at the present time what we might call a new method of feeding, in which stress is laid very much on the concentrated portion of the ration and the diminution in the coarser portions; which implies plenty of cake and meal with hardly any hay or roots. The new system is not general in Sussex yet though some farmers adopt it.

Milk cows may get as much as 3½ or 4 lbs. of mixed meal, cake, and grain per gallon of milk yielded, which signifies that a cow giving 5 gallons of milk receives approximately 20 lbs. of highly-concentrated food. The rest of the ration is made up of hay only, say, 14 lbs., without any roots at all. One cannot wonder that digestive troubles are frequent when such a radical departure from the natural diet is practised.

Stomach diseases are more common than intestinal in cattle, which is probably an opposite condition to that prevailing in the horse. The first three compartments do not secrete any digestive fluid, but they may have a catarrhal inflammation of their mucous membrane, which results in an outpouring of fluid. One must bear in mind that the nervous system of the stomachs is not identical. The third has a different supply from the others, namely, the sympathetic.

Disturbance of the nervous system by digestive troubles is fairly common in cattle, and it is probably nearly always due to some toxin elaborated in the compartments, *e.g.* stomach staggers in Scotland due to the ingestion of rye grass at a certain period of its growth, when it is neither grass nor hay. Occasionally also one meets with cases simulating milk fever from eating grass early in the Spring. Many of the symptoms attendant upon stomach diseases are caused by a paresis of the muscular walls. This paresis interferes with digestion, which, in turn, may lead on to inflammation. Paresis of the muscular walls of the reticulum prevents rumination. Lead poisoning causes paresis of the various stomachs, and, of course, leads to the typical symptoms.

Our present state of knowledge does not enable us to give an exact clinical description of the

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separate parts of the stomachs involved, and it is probable that one largely implicates and influences the others.

RUMEN.

We might classify the diseases of this organ into (*a*) impaction, (*b*) rumenitis, (*c*) tympanites.

IMPACTION: This is an overloading of the viscus, with no evolution of gases or fermentation of its contents. There is torpor, or paresis, of its walls, as in all over-distended organs. The causes are, briefly, over-eating and the ingestion of too coarse fodder. Sometimes the ingestion of the fœtal membranes seems to produce identical symptoms. One should attach considerable importance to the absence of its contractions, which should be at the rate of 2 per minute. Pain and sweating are two of the symptoms which are not generally mentioned in the text-books.

Treatment.—A good dose of a saline purgative is indicated, *e.g.* Epsom salts ¾ to 1 lb., or sulphate of soda ditto, together with aloes and nux vomica. Some little time ago there was a discussion in the *Veterinary Record* with regard to Epsom salts; many practitioners had discarded its use, believing it to be somewhat dangerous. I am in entire disagreement with them. It has been used for years, and if properly administered in the requisite dose, it is a very valuable purgative. I do not believe in quickly repeating the dose of 1 lb., because I think if that is ineffectual the second will do harm. I have known as much as 7 lbs. to be given to an animal within a day or so, with the result that the animal died, but that is not evidence against Epsom salts as a whole. Ammonium carbonate is another useful drug. Barium chloride I not have tried, though it is advocated by some people. Its effect upon horses makes me chary of using it in cattle. One might think that eserine and pilocarpine would be beneficial, but here again I have never liked to try them.

Rumenotomy. — This operation would be chiefly indicated in those cases in which the organ is filled beyond its usual capacity, and in which the contractions do not re-appear after some time. I have only met with two or three cases in which one might think this operation would be advantageous, chiefly for the reason that feeding with coarse, innutritious fodder is not very common in my locality, and the owners rather objected to its performance, but those in which I thought the operation was indicated recovered after a time with mild measures.

RUMENITIS: This condition, apart from other stomachic disturbances, that is to say, the rumen alone being involved, must be difficult to diagnose. I am inclined to think that vomiting, which is occasionally seen in cattle, may be due to it. I am not referring to the rumenitis which is seen in anthrax, rinderpest, and other specific diseases. The two chief causes with which we are likely to meet will be musty fodder and frozen roots. I have only met with one case where inflammation was confined to the rumen upon *post-mortem* examination, and in this particular animal the two chief symptoms were very bad diarrhœa and slight tympanites of the rumen. One expected to find inflammation of the intestines, but found, instead, inflammation of the rumen. In treating the cases of vomiting, the chief indications are sedatives like soda bicarb. and chlorodyne.

TYMPANITES: This may be sub-divided into (*a*) acute, (*b*) chronic.

Acute.—In this there is an excessive fermentation, together with inability to get rid of the gases, and the resulting paralysis of the muscular walls accentuates the condition. It has always seemed curious to me why clover should lead to such a rapid evolution of gases so soon after being eaten. There must be some potent factor present; probably the ferment is bacterial, and the bacteria are stimulated to activity by *slight* moisture. Clover which is damp from dew seems to be much more liable to cause trouble than that washed by a good shower of rain. Frequently there is no time to puncture these animals, and death rapidly ensues.

Treatment of acute tympanites.—Insert the trocar and canula and let out the gas. Abscess formation hardly ever follows. Ammonium carbonate is a valuable drug here. It has two or three actions; it stimulates the muscular walls, it neutralises the acid fermentation which has been responsible for the production of the gases, and to some extent combines with the CO_2 gas. Turpentine is probably our next best drug — it, too, stops fermentation. We may also use ether, nux vomica, and sodium hyposulphite, followed later by a purgative, or give the turpentine in linseed oil. In one case of tympanites, due to the cow eating 56 lbs. of sharps one night, puncturing resulted in dispersing the gases, and then the trocar discharged about a bucketful of meal and water, and the animal recovered. Cattle turned out to grass sometimes suffer from a mixture of over-distension *plus* tympanites, and treatment is rendered difficult because the patients resent any more being poured into their full stomach.

Chronic.—One might classify this into two subdivisions—first, those cases in which the animal is always "blown," and, second, those cases in which the condition comes on, say, every two or three days. Tuberculosis is said to be responsible for the first, and is supposed to act by the medium of an enlarged mediastinal gland, which, pressing upon the œsophagus, prevents the eructation of gases formed in the rumen. To my mind, this is open to doubt. Since the Tuberculosis Order came into force, I have met with probably ten cases in which the mediastinal glands were as large or even larger than a cocoanut, and in which there was not the slightest history of any tympanites during life. Some years ago a calf in which the tympanites was constant was found on *post-mortem* to have a large number of foreign bodies (nails chiefly) in the reticulum. Another case presented adhesions between the wall of the rumen and the flank, and in this particular instance the rumen was full of gas for about three weeks on end. Medicines

had no effect, and puncturing afforded only temporary relief.

The second sub-division, *i.e.*, those cases in which the tympanites is recurrent, is frequently seen in calves which get distended after swallowing their milk too quickly; but as in these animals the rumen is not fully developed, the gas probably comes from the fourth stomach, due to indigestion from the food being not quite suitable. Recurrent tympanites is also seen in adult cattle, and is best treated there by an alteration in the diet. As medicines, we may use linseed oil, carbonate of ammonia, nux vomica, bitters, ginger, salicylate of soda or hyposulphite of soda. In calves hydrochloric acid sometimes answers very well.

Reticulum.

The frequency with which we find foreign bodies in this organ on *post-mortem* is extraordinary, and it is also extraordinary that they have caused no symptoms during life. One cannot, therefore, consider foreign bodies abnormal unless they do produce symptoms. Sharp instruments, like nails, wire, or other penetrating bodies, may, of course, travel to the heart, where they produce the typical symptoms of traumatic pericarditis, but one must not forget that these foreign bodies may reach the liver or pass out through the thoracic wall, where they may form abscesses or fistulæ. One case I remember, a milk cow in good condition, suddenly went mad, apparently from excessive pain, and quickly died. On *post-mortem* all one could find to suggest the cause was a staple used for fastening barbed wire to posts, which was hooked in the mucous membrane of the reticulum, the sharp end hanging free in that organ. There was also the top of a bicycle oil can (which comprises a knob and a needle), in addition to several stones and nails. Whether these were to be held accountable for the brain symptoms I am not prepared to say, but evidently the pricking must have caused the animal a good deal of pain. The diagnosis of anything wrong with the reticulum must be difficult. Tympanites which does not yield to treatment is suggestive of foreign bodies in the organ. The animal is supposed to feel pain when pressed upon the left hypochrondriac region. Treatment must, of course, be on general lines.

Impaction of the Omasum.

This condition is also called fardel bound and vertigo. It is a condition which we may with some certainty diagnose, because the symptoms are rather distinctive. The omasum does not secrete any fluid, thus differing from the other stomachs, but the liquids of the first and second compartments wash into it. An insufficient supply of liquid leads, therefore, to impaction; a deficiency of saliva, due to the animal not ruminating, has a similar result. As this stomach has a special nerve supply, a paresis of the walls of the others may not implicate it, and, of course, it may be involved independently of the others. Its nerve supply is the sympathetic — not the vagus, which supplies the others. Want of water when animals are turned out to pasture during the hot, dry months, is said to cause this condition, but it is rather curious that sheep do not seem to suffer from impaction of the omasum though they drink very small quantities of water. Lead poisoning, not of the acute kind, produces symptoms like impaction. Cases of lead poisoning occur in which it is difficult to demonstrate the metal in the contents of the stomachs, at least by the naked eye, and I have met with cases in which I suspected lead, but which, in the absence of an analytical report, I could not confirm. One should recollect that there are other deleterious substances in which we may not find any typical examples on *post-mortem*, but which are accountable for deaths, *e.g.* acorn poisoning. Other causes of impaction of the omasum are too dry and too coarse feeding-stuff *plus* insufficient exercise.

Diagnosis.—The following are the most prominent symptoms—cessation of rumination, slight tympanites of the rumen (with absence of its movements), constipation, and, lastly, grunting. This seems to be the most important and diagnostic sign. The temperature may or may not be elevated. Nervous symptoms, such as staggering, congestion of the brain, partial paralysis of the hind-quarters, and tremors may also be seen. The disease generally lasts for a week or ten days, and the treatment should be directed with that end in view. Some cases are apt to be confused with cerebro-spinal meningitis, but animals affected with the latter do not appear to grunt, though they show digestive disturbances, and the brain symptoms are more marked than we get in impaction. Milk cows in the stall at the end of winter, when the feed is largely composed of swedes, sometimes get a sort of indigestion with staggers.

Treatment.—This should be on the lines of evacuating the stomach and intestines by one good dose of purgative medicine—Epsom salts 1lb., or sulphate of soda 1 lb.—together with carbonate of ammonium 2 to 3 drachms, powdered nucis vomica 1 drachm and ginger. Do not repeat the strong dose, but follow up with small quantities of castor or linseed oil. Sometimes the animals do not respond to the purgative, and some people give 20 or 30 drops of croton oil, which, of course, is rather drastic. It is often efficacious, and if it does not act does not seem to cause ill effects. Many animals do well even if no motions are passed for a day or two. In some cases the grunting ceases after the purgative has operated, to re-appear in four or five days. In such an event, after that interval, there does not seem to be any harm in giving another dose of Epsom salts or sulphate of soda, but it is a mistake to give pound doses of Epsom salts every day for three or four days. A laxative diet is indicated. Some years ago, on making a *post-mortem* of a cow that died of milk fever after lying recumbent for about a week and eating very little food, the *post-mortem* revealed an ulceration of the various parts of the mucous membrane of the omasum, but no symp-

toms during life were indicative of that organ being affected.

Abomasum.

Inflammation of the fourth stomach, abomasitis, or true gastritis.—Does this condition occur independently in adult cattle? In Scotland the disease known as "stomach staggers," which is due to eating rye grass from certain pastures at a particular period of its growth, is a gastro-enteritis. It is seen in horses and sheep also, and it really should have a separate chapter in veterinary pathology, if we also use the same nomenclature (*i.e.* stomach staggers) for those cases of inflammation of the third stomach when they show nervous symptoms.

Probably this fourth compartment does, in adult cattle, suffer from indigestion from the alimentary matters not suitably prepared by the first, second, and third stomachs, which have been passed on into it, and the before-mentioned indigestion may lead on to inflammation; but in adult cattle there is apparently no definite symptom to enable one to say that this particular organ is involved. When we dose sheep for parasitic gastritis, using liquids, we do so with the idea that it shall flow directly into the abomasum. It is said, however, that fluid may find its way into all four stomachs at one and the same time. When cattle, after drinking icy cold water, show colicy symptoms, as evidenced by kicking at the abdomen, and lying down, one might suggest that bovine colic is an indigestion of this organ; and, of course, in calves, as the first three stomachs are not fully developed, we must expect to get indigestion and inflammation in this organ if the milk or milk substitutes are not what they should be, because the liquids must flow directly there. In adults, perhaps, those cases which evince pain by the grinding of the teeth, by the eructations of gas, and the fæces being covered with mucous, suffer from inflammation of this stomach, but I am not prepared to be dogmatic on the point. In inflammation here, as in other stomachs, there would be a rise of tempearture. Colic in cattle generally passes off quite quickly, but one Jersey cow had repeated attacks two or three times, a day for a week. It was so unusual and interesting, that I called in a brother practitioner, but we were unable to ascertain the cause, or the seat of the pain, definitely. There was no tympanites.

In adults, gastro-enteritis is not at all uncommon, diarrhœa being a prominent symptom.

In calves there is no doubt that abomasitis, or gastritis, does occur, and the symptoms are grinding of the teeth, distention of the abdomen, dejected appearance, and a fœtid smell from the mouth. In them it tends to become chronic, and the animals do not strive, look pot-bellied with gaseous distention, and later on there is a fœtid diarrhœa.

Treatment.—The indications in adults would be oleaginous purgatives, such as castor or linseed oil, followed by sedatives like bicarbonate of soda or chlorodyne. If a disinfectant is required, turpentine acts well; use is frequently made of sodium salicylate.

For calves, a similar line of treatment should be followed, but if the affection tends to become chronic, small doses of hydrochloric acid with bitters and nux vomica will be found advantageous. I lay stress on the hydrochloric acid.

Discussion.

The President (Mr. J. B. Dier): You have heard a most interesting and informative paper from Mr. Taylor, and if Mr. Pugh does not mind, I should like him to open the discussion upon it.

Mr. L. P. Pugh: The paper to which we have listened with such pleasure and interest is of so comprehensive a nature that it is somewhat of a task to respond, without having been previously warned, to the President's request. I have been extremely interested in this paper of Mr. Taylor's because he has raised several points which have been exercising my mind of late. One, in particular, is the suggestion that the nervous mechanism of a cow's stomach is the basis of a number of the symptoms to be observed. With this view I am entirely in agreement, though I do not think that it is generally accepted at the present time. Mr. Taylor includes milk fever and milk fever-like syndromes in his paper. Some time ago I suggested that milk fever might be explained as a physiological upset with a resulting auto-intoxication from the stomach. I got severely reproved for it, and from the physiological point of view I do not now think I was right, but I do think that the nervous symptoms in milk fever arise from the results of bacterial action in the stomach. I suggested at the time that they were botulinus-like in action, and that was the part to which a good many took exception, because they said "how could a botulinus-like toxin show these effects and disappear in a matter of a few hours after such a simple thing as inflation?" But Major Dunkin pointed out to me that the same thing was said in regard to tetanus. He recorded at a meeting of the Central Division a few years back, a case in which a horse which was being hyper-immunised for the purpose of the production of anti-tetanus serum was given too much toxin. When the animal was seen it was in the grip of an acute attack of tetanus. The Director of the Institute asked "How much did you give?" and, when told, he said, "Give such and such an amount of tetanus anti-toxin." An hour afterwards the horse was up and feeding. I suggest that the same thing happens in cattle. We have got these toxins absorbed and they give rise to bulbar symptoms, and it is only the inflation that will bring the anti-toxin mechanism, which has been paralysed temporarily, into operation again.

Another point was in regard to gastritis in calves; the acute tetany that so frequently occurs—you know it well. I had a case about three weeks ago. It had a temperature of 110° F. I had had some parathyroid extract sent me by Parke, Davis and Co., to try in

tetany and, while I got them to throw buckets of water over the calf, I injected the parathyroid extract with calcium lactate. In two hours that calf was back to normal; it recovered entirely and was running about the following day. I think, therefore, that there are probably two factors concerned in all these gastric cases showing nervous symptoms. You have the thing that Mr. W. L. Little showed that occurs in milk fever—a low calcium content of the blood, and some other factor as to identity of which Mr. Little, for his part, did not commit himself. Mr. Taylor suggests that they are toxins and that their action is, in many cases, botulinus-like. I do not believe that there is a great difference in pathology between ordinary milk fever and "stomach staggers" as that disease is met with in Scotland.

A point arises in connection with the treatment with purgatives. I always think that in the majority of cases it pays to play for safety and I use such oleaginous purgatives as linseed oil and castor oil in preference to salts. They simply lubricate the bowel and in combination with nux vomica there is less likelihood of doing harm. That is the treatment on which I go in treating gastric disturbances in cattle.

The Hon. Secretary: I should first like to thank Mr. Taylor for his excellent paper. From the secretarial point of view, that member who, on the day of his election, reads a paper at the meeting, at once secures the order of merit and wins high favour. (Applause.) In running a society there are three classes of merit—that of President, of being the reader of a paper and of supporting the meeting, and I suggest to all members of the lower classes that they should hasten to move higher up. (Laughter.) There are one or two things in the paper in which I have been very interested, the first being Mr. Taylor's reference to the new method of rationing. From what some farmers say about this method, it is going to remove all cases of stomach disorders in cattle, therefore I daresay it is a good thing that Mr. Taylor got his paper in in time. (Laughter.)

In regard to diseases of the rumen, the essayist, when speaking of impaction says: "This is an overloading of the viscus, with no evolution of gases or fermentation of its contents. There is torpor, or paresis, of its walls, as in all over-distended organs. The causes are, briefly, over-eating and the ingestion of too coarse fodder. Sometimes the ingestion of fœtal membranes seems to produce identical symptoms." I think that there are two kinds of this condition; you may get it from coarse, innutritious fodder, as stated here, when you get overloading of the rumen, and no gas, but at the same time I think that with dairy cattle (and it is more likely to occur under the new system of feeding), if you give rich food you certainly get an overloading of the viscus, with a great production of gas, not only fermentative gas, but putrefactive gas. I am quite in agreement with Mr. Taylor's idea of not giving too strong doses of purgative medicine; at least, not too often. He has a very high opinion of Epsom salts and I think it is a very good thing to use myself. I have endeavoured to establish a definite line of treatment in these cases and where there is a great deal of fermentation I like to give a good dose of Epsom salts, but where you have impaction I have been much inclined to give a dose of treacle. I believe that where you have got a case that is going to last a considerable time it is as well to give a nutritive kind of purgative. In regard to impaction of the omasum, I think this is a very troublesome disease with which to deal. The animals often show a considerable amount of pain. In these cases one has to be very careful not to take drastic measures.

On the whole, I agree with what the essayist has said in regard to methods of treatment, and I should again like to thank him for the very interesting paper he has brought before us.

Mr. C. Roberts: I desire first to express my agreement with what Mr. Hogben has said regarding our indebtedness to Mr. Taylor for bringing this subject before this meeting of country practitioners, and I am only sorry that I missed the first part of the paper. However, I heard the matter of impaction of the rumen touched upon. I agree with Mr. Hogben that there occur a number of cases of impaction of the rumen without fermentation, or practically without gas formation, and many of these cases die if rumenotomy is not performed. I think sometimes that we in this part of the country rather hesitate, we do not carry out the operation of rumenotomy early enough. In Scotland this operation is often practised and it is said, by Scottish practitioners whom I have met, that there is little danger and that the cattle do well after it.

With regard to aperients, I think that extreme caution is required in their use. Many cattle in this country are killed with aperients—with the vegetable oils and with salts. I like stimulant treatment of the stomachs of cattle—ammonium and nux vomica are my chief stand-bys. In my opinion, nervous derangement is often at the bottom of this kind of mischief. Treacle is a thing I have used and I think it is very safe. Liquid paraffin is also very safe—safer than the vegetable oils, which, in large doses, derange digestion. I also think that the copious use of enemata is very good treatment, for if the lower bowel gets unloaded the action throughout the digestive system becomes normal more quickly. Concerning impaction of the fourth stomach in very young calves, many of these animals which die suddenly, die from taking large quantities of milk when food has been witheld from them for many hours, as at market. Some of them die in from 6—12 hours, I think as a direct result of taking large quantities of milk after a long fast. Nails in the reticulum cause a great deal of trouble, and perhaps one should not now enlarge on the subject of traumatic pericarditis, but trauma of the liver is a thing I met with only this week in a cow. I think that peritonitis was the cause of death following the liver mischief, but she was passing bloody urine and she also showed catarrhal symptoms of the eyes and nose. *Post-mortem* showed a nail in the liver

capsule. With regard to cerebral symptoms, in passing, it is interesting to note that many of these cases recover by inflation of the udder with air or oxygen. The occurrence of grunting has been mentioned in two or three of these disorders in Mr. Taylor's paper. It would be very useful to find something really diagnostic, to enable one to ascertain which stomach is affected, but I think that grunting occurs in all stomach troubles, and I do not believe that one can rely upon this symptom as pointing to existence of trouble in one stomach more than in another.

Mr. F. CROWHURST: I can but reiterate the remarks passed by previous speakers in thanking Mr. Taylor very much for coming here this afternoon and presenting to us so instructive a paper. There is a lot of stock-rearing at the present day and I have a great deal of trouble with the different forms of scour in calves. I find considerable trouble in regard to drenching and dosing stock, for the men who look after them nowadays are not, in my opinion, as good as they used to be. From this cause I lost a very valuable cow last week, and my experiences have led me to favour the adoption of the electuary method. I also believe that bad management is the cause of a good deal of trouble and expense in scouring. I do not know whether anybody has had a similar experience.

Mr. F. WARREN: As an old practitioner and one who has always been in trouble with digestive disorders in cattle, I should like to say that I have yet to meet the man who can give you a clear and definite diagnosis, or who can say "She has impaction of the omasum, a nail embedded somewhere," or "It is abomasitis." I know it is very easy to say to the owner "Your cow has distension of the rumen and it may be caused by her eating particular kinds of food," but the real trouble comes when you are then asked, "What is the matter with my cow?" You say it is this, that or the other. Well, we tell that to our clients, but when we make the *post-mortem* examination we find how far wide of the mark we have been in our diagnosis.

I agree that impaction of the rumen with solid material does occur without fermentation taking place. Another very frequent cause of tympanites of the rumen is the eating of unsound potatoes, which produces a condition which it is very difficult to remedy. There is one peculiar way of getting rid of tympanites quickly if you have not a trocar; get a hay-band, twist it round tightly and prop the mouth open with it—that will get rid of a lot of the gas. I agree with Mr. Roberts' remarks in regard to the value of stimulant treatment in dealing with obscure digestive troubles; one of my most useful mixtures comprises linseed oil, aromatic spirits of ammonia and ol. menth. pip. It has often struck me as curious that animals opened by the butcher often show a hard, impacted condition of the omasum, and yet they have exhibited no symptoms of disorder during life. We know that the omasum is dry in its natural state, but how such degrees of impaction can exist without the exhibition of symptoms, it is difficult to understand. You will often find, when you have lead poisoning, that the leaves of the omasum always show petechiæ—the mucous membrane rubs off in little patches. I should like to ask if anyone has seen pilocarpine and eserine used in cattle and if these drugs have any effect on the rumen in the various derangements of the stomachs.

Major ROSE: I agree with what Mr. Pugh has been saying this afternoon, and I disagree, from my small experience, with the administration of large quantities of salts; I think smaller and more frequent doses are better. I am very fond of giving ℥iv. of common salt. If you go on the lines of excessive stimulation, large doses of ammon. carb. and liq. ext. of nux vomica, and massage the rumen, and do not forget to turn your animal out for exercise, you will get quicker and better results than by the employment of other methods, such as purging. I also think that enemata are good; they seem to stimulate the intestines and to relieve pressure. So far as eserine is concerned, I believe it is not so useful as in horse practice.

Mr. PUGH: Is the new line of treatment mentioned by Mr. Taylor the one which Mr. Boutflour has been "boosting?" I was wondering if Mr. Taylor could give its general principles. Apparently, the farmers are cutting out natural food, like roots and cabbage, and substituting larger amounts of cakes and concentrates.

The PRESIDENT: I am one of those persons who believe that you can operate on the rumen almost with impunity, and I think that when you have a foreign body in the rumen it is really your duty to perform rumenotomy. I remember that 30 years ago a small-holder came to me and asked me if I would go and see a cow that had swallowed a piece of bark two feet long. I attended the cow, which had a certain amount of distention of the stomach, but she was still feeding, and I was doubtful as to the swallowing of the bark. Next day rumination and feeding had ceased and there was more distention. There was a solid action of the bowels. I gave a diffusible stimulant and an oleaginous purgative. The day following, the cow was in great pain and the owner was still positive that she had swallowed the bark, therefore, I decided to operate. I made an incision and put in a piece of tape through the skin and muscle and had a man to pull it back. Then I put a piece of tape in the rumen, pulled that organ up and made an incision. The operation was more simple than I had expected, and for restraint I had a man with the bulldogs on her nose and another pushing her against a fence. The rumen open, I put my arm in it and took out a bucket full of ingesta before I came across anything solid. Eventually I found a piece of bark 16½ins. long, instead of the two feet of bark which the owner declared she had swallowed. I removed it, turned in the edges of the rumen and stitched it up. I stitched the external wound and put on a little pitch. The cow got on well and had several calves.

Mr. Dier cited several other instances in which he had practised rumenotomy with success, and continued: In regard to the grunting being diagnostic of disorder in one compartment of the stomach more than in another, you do not always get grunting in stomach trouble alone—you may get the same grunt with liver disease and, as to impaction of the third stomach, you frequently get it this time of the year. I think a great cause of that, and especially at the time when they are throwing oak, is the ingestion of tannin out of the oak shoots which are broken off. As to the matter of the calves, we know very well that most of the trouble comes from the fourth stomach. You get it, as Mr. Roberts has said, with calves after market. They are there all day, after a long journey, and they are always oozing a good deal of saliva and weakening the gastric juice thereby. When they are taken home and given their fill of milk, the milk curdles almost immediately, before the digestive process starts. If people gave calves half a pint of cold water before they gave them food, a great deal of the stomach trouble occurring in calves from markets would disappear.

Regarding scour, some of it and of the stomach trouble is, I am sure, due to the white scour bacillus. I have found the Cutter calf scour vaccine very efficacious. Whether the trouble is due to the calf scour bacillus or something else, the vaccine seems to have "put paid" to the particular outbreak I have in mind. Mr. Taylor mentioned that, in redwater, you get constipation first, but, in my experience, you generally find that diarrhœa sets in first. Then you do get constipation, from loss of blood and lack of nerve power in the bowels.

Mr. TAYLOR: I admit that possibly my cases were not seen until the onset of the stage of constipation.

The PRESIDENT: In conclusion, I thank Mr. Taylor for his very excellent paper; I am sure it has been quite a treat to us.

Mr. J. E. WALLIS remarked that prior to that day he had always believed that in redwater one observed a hard, whipcord-like condition of the fæces at the outset, followed by diarrhœa. He agreed with Mr. Taylor's view that one rarely met with an inflammatory condition of the rumen, but it did occur in poisoning by *colchicum autumnale*. Recurrent tympanites had been mentioned, but no one had made reference to the use of formalin in its treatment. Where the probang had failed to relieve the condition, or he had failed to relieve it by the use of sodium hyposulphite or other antiseptics, he resorted to formalin. You had, however, to give formalin with a great deal of water, otherwise it would cause much disturbance. Did Mr. Taylor think that spewing the cud was due to the œsophageal groove being choked with hardened ingesta? He had found that the best procedure in those cases was to pass a probang which was, 6in. from its end, fitted with a sort of joint. He thought that the dying off of calves was often due to spasm of the stomach. He had formed the opinion, from experience, that there was some toxic property in mag. sulph. Aloes was a very valuable drug in cattle practice, if used with discretion.

Mr. E. MORGAN asked if any members present had made use of flowers of sulphur as a purgative—about ℥vii., mixed as if one was making gruel. It was a very mild purgative, but it was very useful in some of those obstinate cases.

The PRESIDENT, replying to Mr. Pugh's question in regard to the nature of Mr. Boutflour's method of feeding, said that it embraced the elimination of all roots, as feeding with roots did not pay, and the giving of nearly all food in the form of concentrates; no long straw was given; water *ad lib.*

Mr. TAYLOR: They also give sterilised bone meal in the proportion of 1lb. per cwt. of concentrated food.

THE REPLY.

Mr. TAYLOR, replying to points raised in the discussion, said: One or two remarks in my paper were inserted for the purpose of trying to draw you out, in particular those dealing with the nervous mechanism and with purgatives. The tendency now is to give less Epsom salts than formerly. At one time one used to administer 1lb., now one gives less of sodium sulphate *plus* nux vomica. I am very fond of giving oleaginous purgatives, believing them to be most efficacious and safe, if not carried too far. Mr. Pugh made a reference to horses with tetanus receiving a very large dose of anti-toxin and recovering almost at once. In a paper read by Dr. Fullerton, now Medical Officer of Health for Lewes, the veterinary surgeon was asked to increase the dose in tetanus—not to give a mere one or two c.c. but half a pint. That suggestion was too expensive frequently to act upon, but that was the argument, that you must give a tremendous dose in tetanus. Mr. Pugh mentioned that in some gastric cases cows showing nervous symptoms often recover after inflation. So they do, but why I am unable to say. I quite agree with him in playing for safety in the use of purgatives; it does not do to carry to extremes the administration of large doses of purgatives. I like treacle as a purgative. Mr. Roberts mentioned that rumenotomy was frequently performed in Scotland; of course, it is a matter of routine there. He also mentioned the giving of enemata; I should, perhaps, have mentioned that in my paper, but I left out some points which I took for granted. Mr. Roberts said that large doses of oil derange the digestion; that is perfectly true. Two or three gentlemen mentioned about calves, taking a large quantity of milk after a long fast, suffering from indigestion and, not infrequently, dying. That is a well-known fact, and Mr. Dier is right to prescribe a small drink of water preparatory to the milk for which the calves have been waiting for so long. A point was raised about grunting. It is true that animals do grunt with other conditions than impaction of the third stomach, but such grunting indicates mere over-distension—it is not a painful grunt and I think the two can be differentiated. Mr. Warren stated that animals killed by the butcher often show a hard condition of the third stomach and

yet show no symptoms during life. I have often seen that myself and I have wondered why they did not. It is possible that the explanation is that these animals were kept without water for some time before they were killed. A member has passed the observation that the diagnosis we make during life is not always borne out at the *post-mortem* examination. In this connection, I might quote Hunting's dictum that the great difference between the medical profession and the veterinary profession is that the grave covers up the faults of the former but the knacker finds ours out. Mr. Rose mentioned the use of common salt. Formerly I used to give about a quarter of a pound *plus* ℥viii. of Epsom salts; the sodium chloride is an antiferment. Concerning the stimulant treatment now finding favour, the question arises, what is a large dose, for large doses are required for constant stimulation. I think cattle are rather susceptible to poisoning by strychnine. I have seen half a grain cause what I thought to have been symptoms of spasms, though some practitioners give up to a grain. In my opinion, you have to be careful with nux vomica, for I believe that some samples are much more potent than others. In milk fever I use 30 minims of a 1 per cent. solution, *i.e.*, about one-third of a grain. I think that is about as much as one wants to give. Mr. Wallis expressed the opinion that there is some toxic property in mag. sulph. Apparently, Epsom salts in very large doses (of, say, 7 to 8lbs.) do cause symptoms of poisoning, though theoretically they are not supposed to decompose in the intestine, but to cause an outpouring of fluid into the lumen of the bowel.

Mr. WALLIS: They act by osmosis and draw the water from the blood; that is why I cannot understand why they cause poisoning.

Mr. TAYLOR: One gentleman recommended passing in aperients through the trocar; it is quite a good idea—also in horses. In Scotland we used to give ℥i.-ii. acid. carbol. in Oi. of water by that method.

I have never tried formalin and I believe it is a risky drug to use. Mr. Morgan spoke of flowers of sulphur as an aperient. Cows will take ℥iv. of sulphur in a bran mash and it is a fine laxative. I was very interested in Mr. Dier's remarks in regard to rumenotomy. I think he was quite right in performing the operation when there was a history of a foreign body—such as oak bark—being ingested. In the recurrent tympanites you can leave the canula in if you take the precaution that the animal shall not rub it against anything. Mr. Dier spoke of the oak shoots and their tannin. Some years ago, during the war, there was a firm getting oak beams and they placed the oak on the top of a little hill. Leading from this was a gutter which ran into the pond from which the cattle drank. The rains came and one could easily see where the inklike fluid had run into the water. The farmer complained that the cows went off their milk and I investigated the matter. He took his milk to the creamery and there was a constant diminution directly after the onset of the rains. One is supposed to be able to give tannin by the mouth without affecting the milk supply, but the fact remains that these cows went dry after ingesting this water. The farmer also said it had caused abortion. I suggested to the people that they had better compromise the matter at once and they did; they paid £100. A judge would probably have ruled that it was a clear case of cause and effect. The President also mentioned the white scour bacillus. Some time ago a farmer lost 13 calves one after the other. I suggested inoculating with Parke, Davis's vaccine and, as it should be given very quickly after birth, I told the farmer that I would show him how to give it and then he could do it himself. He did so, and he has never lost another calf. I thank you for your patient hearing of my paper and for your interesting discussion.

GALWAY ADOPTS THE TUBERCULOSIS ORDER.

"The Bovine Tuberculosis Order, which was designed for the purpose of prohibiting the export to England of Irish cattle suffering from tuberculous disease, was," says the *Irish Times*, "adopted by Galway County Council on 21st May, after an inspector from the Department of Agriculture had stressed the importance of securing 'a clean bill of health' for Irish cattle in view of overseas competition in the export trade.

"The inspector (Mr. Malone) pointed out that for the purpose of the Order it would be necessary to divide the county into a number of areas and appoint fully-qualified veterinary inspectors. It would be necessary also to get rid of the non-qualified men. The dairy inspectors also, he thought, would have to go. The men appointed would have an inclusive salary, there being no fees or expenses. What the Department really wanted was a consolidated scheme with all the veterinary services placed under one head.

"In reply to Mr. T. Kenny, who asked how it was that cattle were passed as sound in Ireland and within twenty-four hours were found to be unsound on the other side and slaughtered, the inspector said that since the new Order was made no cattle had been held up on the English side.

"Answering further questions, Mr. Malone said that if unsound Irish cattle succeeded in getting over to England and were certified to be suffering from any disease, they would be held up and slaughtered, and the owners would not get any compensation.

"Mr. Michael O'Neill.—If I send over a healthy beast and it is slaughtered after landing, am I to suffer the loss?

"The inspector replied in the affirmative.

"Mr. Concannon asked whether, in the event of the Free State veterinary surgeons passing cattle as free from disease in Ireland and the English inspectors certifying the same cattle to be unsound, the owner would be compensated for the loss of his stock by either Government.

"The Inspector.—The owner will not be compensated in such a case.

"Mr. Concannon said that this condition of affairs was likely to result in a prostitution of justice.

"Mr. T. Flanagan (Republican) said that there was no doubt that there was an insidious attempt being made in England to boycott Irish cattle. Until that boycott of the Irish cattle was taken off, he suggested that they should boycott all English goods.

"Mr. Corbett proposed that the matter should be postponed for five years, and, on a division, there voted for adopting the Order 17, and for postponing the matter 13.

"It was decided to appoint five qualified veterinary inspectors for five areas, at salaries varying from £200 to £75."

Notes on Parasites in 1925.

By A. W. Noel Pillers, F.R.C.V.S.

During last year a number of specimens was examined for members of the N.V.M.A. The following table gives the most important of them. It is followed by a few remarks upon any species of special interest.

Species Examined.

Name.	Host.	Locality.
Fungi :—		
Achorion sp.	Dog ...	Lancs.
Microsporum equinum ...	Horse ...	,,
Protozoa :—		
Isospora rivolta	Cat ...	,,
Eimeria stiedæ	Rabbit ...	,,
E. zurni	Ox ...	
Cestoda :—		
Cysticercus pisiformis ...	Rabbit ...	Lancs.
C. tenuicollis	Sheep ...	,,
Cœnurus serialis	Rabbit ...	Salop.
Taenia serialis	Dog ...	Lancs.
Dipylidium sexocoronatum	Dog ...	,,
Moniezia planissima ...	Ox ...	Cheshire.
Trematoda :—		
Fasciola hepatica	Rabbit ...	Lancs.
Nematoda :—		
Dictyocaulus viviparus ...	Ox ...	Denbigh
D. filaria	Sheep ...	Lancs.
Ascaris sp.	Zebra ...	Africa.
Habronema sp.	,, ...	,,
Graphidium strigosum ...	Rabbit ...	Lancs.
Ancylostomum caninum ...	Dog ...	Uganda.
Spirocerca sanguinolenta ...	,, ...	,,
Trichuris ovis	Ox ...	,,
Gaigeria pachyscelis ...	Sheep ...	Rhodesia.
Oesophagostomum columbianum	,, ...	,,
O. venulosum	,, ...	Lancs.
Chabertia ovina	,, ...	,,
Strongylus edentatus ...	Horse ...	Ayr.
Trichonema insigne ...	,, ...	,,
Ceratospiculum tendo ...	Falcon ...	Cheshire.
Mollusca :—		
Limnæa truncatula ...		Montgomery.
Acarina :—		
Tyroglyphus longior ...	Dog (fæces)	Cheshire.
Histiogaster entomophagus	,, ,,	Lancs.
Aleurobius farinæ ...	Dog ...	,,
Sarcoptes bovis	Ox ...	Cumberland.
Notœdres cati	Cat (fæces)	Lancs.
Demodex canis	Dog ,,	,,
D. equi	Horse ...	,,
Ixodes ricinus	Goat ...	Cyprus.
I. hexagonus	Dog ...	Carnarvon.
Linguatula serrata ...	Ox ...	Ireland.
Insecta :—		
Neptus hololeucus ...		London.
Œstrus (Gastrophilus) ...		
intestinalis	Horse ...	Denbigh.
veterinus	,, ...	,,
*ternicinctus**	Zebra ...	Africa.
gedœlsti	,, ...	,,
No. 2 of Brauer, 1897 ...	,, ...	,,
sp. nov	,, ...	,,
Pulex irritans	Man ...	Lancs.
Ctenocephalus felis ...	Cat ...	,,
C. canis	Dog ...	Kent.

* Kindly determined by Mr. W. H. Potts, B.A.

Fungi. A species of *Achorion* was found on a dog which belonged to an institution wherein there were children affected with ringworm. *Microsporum equinum* causes microsporic ringworm in horses. The parasite presents three forms—the *oospora* variety affecting adult equines. In the present case two attendants showed very similar lesions on the arms and were treated for dermatitis—equine origin.

Protozoa. *Isospora rivolta* was found in large numbers in the fæces of an unthrifty kitten, which was regarded as having ascarids. The animal went out of treatment still voiding large numbers of coccidia and apparently did well.

Cestoda. *Dipylidium sexocoronatum* occurred in large numbers in a dog treated for tapeworms. It differs from *D. caninum* in that the hooks of the rostellum are arranged in six rows.

Trematoda : *Fasciola hepatica*—the common liver fluke of sheep—was found in large numbers in the livers of three rabbits from a shoot where rabbits were weak and dying. Although the rabbit is given as a host of this parasite, in extensive outbreaks among sheep one rarely comes across infected rabbits on the same land, even when special search is made. In the present instance there had been no sheep on the land for several years, and liver rot in cattle and sheep was stated to be absent from the district.

Acarina : *Tyroglyphus longior*—a mite from forage and farinaceous material—was found in large numbers in the fæces of a dog, together with eggs resembling those of *Musca domestica*. *Histiogaster entomophagus*—another mite which feeds on dried animal and vegetable matter—was also observed in large numbers in dogs fæces. *Aleurobius farinæ*, the common acarus of flour and bran, was obtained from a skin scraping of a dog.

Notoedres cati—the cause of head mange—was discovered in cats' fæces, and dogs stools on two occasions contained large numbers of *Demodex canis*. The larval forms of *Linguatula serrata*—pentastomes or tongue worms—were found in three separate lots of mesenteric glands of cattle from Ireland (vide *Veterinary Journal*, Vol. 81, No. 5, Sept., 1925, p. 444).

Insecta : *Neptus hololeucus*—a beetle—was reported from drug drawers. The bots of the stomachs of equines are now placed in genus *Œstrus*. *O. veterinus* (syn *O. nasalis*) was forwarded from a horse's stomach in Denbigh. It is smaller than the prevailing species [*O. intestinalis* (syn *O. equi*)], and has only one row of spines on its segments. A zebra which died soon after importation into this country from Africa was found to harbour in its stomach the bots of *O. ternicinctus*, *O. gedoelsti*, *O. No. 2 of Brauer*, 1897, a new species (vide *Annals of Tropical Medicine and Parasitology*, No. 3, Vol. XX., 1926), and a form, possibly *O. inermis*.

A veterinary surgeon forwarded some fleas which he stated had infested him from a horse. They were *Pulex irritans*. Larvæ of the cat flea (*Ctenocephalus felis*) were reported as small maggots from a cat's back, and *C. canis* (larvæ) were found in a scraping from the skin of a dog.

General. Several samples of fæces contained ascarid, strongylid and tapeworm eggs ; others from dogs and cats contained hairs and fibre (string), and several specimens were negative ; as were a number of skin scrapings for acari and dermophytes.

CLINICAL AND CASE REPORTS.

Inflammatory Thickening of the Stomach in a Pig.

By M. Bray, M.R.C.V.S., King's Lynn.

I am enclosing a photograph of the stomach of an eight weeks' old, well-nourished pig. The stomach varied, when fresh, from ⅜ to ½ inch in thickness. There was thickening of the duodenum, but the passage was not occluded.

The Institute of Animal Pathology, Cambridge, who kindly examined it for me, state: "the thickening appears to be of an inflammatory nature. Sections show that inflammatory exudate had infiltrated between the submucous coat and the muscular coat, forming a thick, fibrinous layer. In places, this fibrinous deposit was undergoing resolution by the invasion of leucocytes and fibroblasts and the formation of loose new connective tissue was taking place at the same time. We have not met with a similar condition previously, and can offer no suggestion as to what was the cause of the process."

Coal Gas Poisoning in a Cat.

By Professor B. Gorton, M.R.C.V.S., M.P.S., Camden Town.

The subject of the following note is a full-grown long-haired male cat. He was left in the kitchen with the door closed at night, and the next morning there was a very strong smell of gas in the room, one of the taps of the gas stove being partly turned on. The animal was lying full length on the floor in a comatose condition. He was carried out into the fresh air and covered up with a woollen cloth, and I was asked to render any assistance I could. I arrived about one hour after the accident was discovered. The cat was then quite unable to stand; a certain amount of stiffening was present in the spine and limbs, and the animal emitted cries at nearly every breath. There were signs that there had been both diarrhœa and vomiting. The pupils of the eyes were widely dilated and the pulse, at the femoral artery, was almost imperceptible. The extremities were very cold, and there was no doubt that the body temperature was considerably below normal. The mucous membrane of the tongue was of a scarlet colour, due to the presence of methœmoglobin in the blood.

On being lifted, the animal did not struggle but extended the spine in a remarkable manner, the legs being also fully stretched. The symptoms exactly corresponded with those recorded in cases of carbon monoxide poisoning in the human subject. The treatment recommended was fresh air and warmth. In twelve hours' time the cat had improved a little. He was able to drag himself along from his bed. On being handled, he showed signs of pain, especially in the lumbar region.

In twenty-four hours he was sufficently recovered to require no further attention.

ABSTRACT.

Bacteria in Muscular Tissues and Blood of Apparently Normal Animals. Reith, A. F. *J. Am. Med. Assn.*, 1926, lxxxvi., 325.)

The author examined "samples taken from the muscles of hams at various stages during slaughter, and also from muscles and blood of live hogs, rabbits and guinea-pigs. All hams of the slaughtered hogs were taken directly to the laboratory. The samples were taken from them within one hour after killing. The hams were sectioned at from about 1 to 2 inches below the symphisis pubis, and the whole cut surface of the upper portion was seared with the direct flame of a Bunsen burner. Suitable sample areas were chosen, the seared crust was removed with sterile instruments from these areas and the new fresh surfaces seared in the same manner. Approximately 3 gm. samples of muscle were then excised aseptically from these twice-seared areas and were distributed as follows:—

1. One gram samples inoculated into beef heart medium.
2. The remainder ground aseptically with 5 c.c. of 0·5 per cent. salt solution and distributed:
   (*a*) A few drops to a blood agar slant.
   (*b*) Five-tenths cubic centimeter to dextrose agar shakes.
   (*c*) The remainder heated at 80°C. for 10 minutes, then cultures taken in:
      1. Plain agar slant.
      2. Dextrose agar shakes.

"In live animals, the muscle samples were obtained aseptically from the gracilis muscle. Cultures of

1 gm. samples were taken in beef heart medium, and three others in 50 c.c. quantities of broth. The blood was drawn directly from the heart and was distributed in 1 c.c. quantities to 9, 49, 99, and 299 c.c. quantities of sterile broth containing from 3 to 15 gm. of ground beef heart in each proportion of broth. The cultures were incubated at 37°C., and presence or absence of growth was recorded after two, four, seven and fourteen days."

"The results are summarised in the accompanying tables:—

TABLE 1.—BACTERIA IN HAMS OF SLAUGHTERED HOGS.

Samples taken	No. of Hams examined.	No. of Samples.	Growths. Number.	Growths. Per Cent.	Anærobic Growths. Number.	Anærobic Growths. Per Cent.
Before scalding...	8	39	36	92	20	51
After scalding, before dehairing	8	39	31	79	20	51
Immediately after dehairing	8	41	28	68	22	54
Immediately after evisceration ...	11	52	43	83	38	73
After 48-hour chill	4	20	16	80	14	70
During cure ...	3	15	13	87	9	60
Total	42	216	167	77	123	57

TABLE 2.—BACTERIA IN MUSCULAR TISSUES OF HEALTHY LIVE ANIMALS.

Animal.	Number.	No. of Samples.	Growths. Number.	Growths. Per Cent.	Anærobic Growths. Number.	Anærobic Growths. Per Cent.
Hog	6	36	36	100	20	56
Rabbit	6	36	22	61	13	36
Guinea-pig ...	6	36	32	89	20	55
Total	18	108	90	83	53	49

TABLE 3.—BACTERIA IN BLOOD OF HEALTHY LIVE ANIMALS.

Animal.	Number.	No. of Samples.	Growths. Number.	Growths. Per Cent.	Anærobic Growths. Number.	Anærobic Growths. Per Cent.
Hog	6	6	6	100	6	100
Rabbit	6	6	4	67	1	17
Guinea-pig ...	6	6	2	33	1	17
Total	18	18	12	67	8	44

The author also briefly records the findings of other investigators. "Many early workers (1) thought that the tissues of healthy animals are sterile. Messner (2), in 1910, found no bacteria in 145 samples of flesh of normal slaughter animals. Zwick and Weichel (3), in 1911, examined seventy-seven samples of muscle, liver spleen and kidney of cattle and hogs. Of eight liver samples, six were positive, and only one muscle sample among fifty-nine tested contained bacteria. All other samples were sterile. In 1912, Grunt (4) found only 2 per cent. of 540 muscle samples to contain bacteria.

"Other workers have obtained contrary results. Thus, Boni (5), in 1901, examined the lungs of twenty hogs for aerobes and found fourteen positive (70 per cent.); among ten lungs of guinea-pigs, two were positive (20 per cent.). Saski (6), in 1908, examined eight organs from guinea-pigs and mice, and isolated thirty-nine strains of bacteria from them, of which twenty-one were facultative anærobes, ten strict anærobes and eight strict aerobes. Conradi (7), in 1908, examined 162 samples of muscle, liver, kidney, lung, lymph node and spleen from 150 slaughtered cattle and hogs, and found that seventy-two samples were not sterile (40 per cent). Thirty of these gave anærobic growth. Wolbach and Saiki (8), in 1909, recorded the finding of a new anærobic spore-bearing bacillus in twenty-one of twenty-three livers of healthy dogs. In 1910, Amako (9) found aerobes present in forty-eight samples of eighty-eight (55 per cent.) taken from the muscle, spleen, kidney and liver of cattle, and Bierotte and Machida (10) got a similar percentage of positives (59 per cent., with 11 per cent. anærobes) from fifty-four samples of the same organs of cattle, sheep and hogs. Bugge and Kiessig (11), in 1911, examined 241 muscle samples from sixty-six head of freshly-slaughtered cattle and found aerobes in thirty-six samples (15 per cent.), and in repeated tests recorded in 1919 (12) they obtained sixty-four growths from 283 samples (23 per cent.).

"We have found no record of similar work on apparently healthy live animals."

The author concludes that:—

"1. Cultures of the muscular tissue of slaughtered hogs show the presence of bacteria in 77 per cent. of 216 samples examined; 55 per cent. of the samples show the presence of anærobes.

"2. Cultures of the muscular tissue of healthy live hogs, rabbits and guinea-pigs show the presence of bacteria in 83 per cent. of 108 samples examined; 49 per cent. of the samples show the presence of anærobes.

"3. Cultures of the blood of healthy live hogs, rabbits and guinea-pigs show the presence of bacteria in 67 per cent. of eighteen samples examined; 44 per cent. of the samples show the presence of anærobes.

"4. It appears justifiable to conclude from our *data* that bacteria may be isolated with considerable regularity from the blood and muscular tissues of healthy live hogs, rabbits and guinea-pigs as well as from the tissues of slaughtered hogs."

Since the author states that "details of the technic and a discussion of the findings will be published later," comment will be made upon but one feature. The value of the conclusions upon such a work depends upon the minutiæ of the technique employed. The Veterinary Clinical Pathologist is very familiar with the many difficulties to be surmounted in obtaining from the live animal samples of blood and other tissue fluids free from contamination. Further, these difficulties, in the experience of the writer, are considerably magnified when bacteriological examination of the slaughtered animal is required. In the latter case, during the process of slaughter not only are all exposed surfaces of the carcase contaminated, but the butcher's dirty knife carries organisms into lacerations of the warm, wet flesh, whence the rapid multiplication and spread of bacteria would appear to be beyond control. Thus, while the writer would readily accept the author's findings of organisms

within the flesh of slaughtered animals, yet the results recorded in Tables 2 and 3 require a very careful enquiry into the technique adopted.

TOM HARE.

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Royal (Dick) Veterinary College.

ANNUAL DISTRIBUTION OF PRIZES.

The annual distribution of prizes of the Royal (Dick) Veterinary College, Edinburgh, took place on Wednesday, June 30th, in the College. Professor Sir Thomas Hudson Beare, Chairman of the Board of Management, presided, and the prizes were presented by the Earl of Stair.

The Chairman referred to the College buildings and equipment, and said that he hoped that the equipment would improve year by year. The extention of the post-graduate work was one of the chief aims of the Board of Management just now. They realised that there was a great field for post-graduate work in veterinary science, and it was very desirable that men working for an ordinary diploma should have the opportunity during their college days of working side by side with men engaged in original research in post-graduate work. One particular line of work which they had taken up by the instruction of the Board of Agriculture was the diagnosis of poultry diseases, which was a matter of great practical value, and they hoped that poultry keepers would realise the help they could obtain from the College. When one thought of the great amount of money which went out of this country each year in poultry and eggs one realised the importance of this work.

Continuing, Sir Thomas pleaded for further help in the way of endowments. A great College like this, he said, could not live on students' fees and Government grants and they wanted the wealthy people to realise that they could spend their money on no better cause than that of higher education. If our country was to hold its own in modern life, it could only do so by way of higher education. In America we saw the example of wealthy millionaires pouring out their millions of dollars in benefiting research, and they hoped that in this country people might realise that a College like the Royal Dick was playing no small part in regard to what he held to be the chief industry of the country—agriculture. They wanted, in particular, to develop the department of parasitology, and they wanted a teacher of eminence, who would give his whole energies to the work of research. They could not do that unless they got further help from the public through endowments.

Principal O. Charnock Bradley, before announcing the winners of prizes, referred, among other points, to the development of the post-graduate work, and said that there was no doubt that Edinburgh would ultimately be able to claim, among other things, that it had a post-graduate veterinary school.

The Earl of Stair, after presenting the prizes, addressed the students. Veterinary science, he said, was one of the most interesting sciences, if not quite the most interesting, and one in which there was practically never-ending scope for improvement. It was one of the oldest sciences in the world, and the more that was actually learned of it, the more they realised how much they still required to complete their knowledge. They had only to look at the last year or two to see how far short the science was of reaching success. With regard to foot-and-mouth disease, although they could not exactly call the result of their efforts a defeat, they could call it nothing less than a repulse. Very fortunately during the last month or so a very great step forward had been made by a veterinary officer in Linlithgow.

The Earl of Stair referred to the death of Sir Stewart Stockman, and, in connection with that, to the importance of finding a means of immunising cattle against tuberculosis, a subject upon which he had once consulted Sir Stewart Stockman, and one which he recommended for study to the students. In conclusion, he assured the students how thoroughly the whole farming industry appreciated the efforts of the Veterinary College.

Dr. Logan Turner, President of the Royal College of Surgeons, proposed a vote of thanks to the Earl of Stair; Mr. J. M. Caie, of the Board of Agriculture for Scotland, proposed a vote of thanks to the donors of the prizes; and Dr. F. A. E. Crew, of the Research Department, the University of Edinburgh, proposed a vote of thanks to the chairman.

The following were the prize winners:—

J. B. M'Kinna, silver medal in junior anatomy; C. A. Stewart, bronze medal in junior anatomy; R. T. H. Massey, silver medal in practical anatomy; W. H. Horne, silver medal in biology and bronze medal in practical chemistry; N. Macdonald, bronze medal in biology; J. Anderson, silver medal in chemistry; and A. M. Urquhart, bronze medal in chemistry.

R. W. Paley, silver medal in senior anatomy, silver medal in practical anatomy, and silver medal in zootechny; W. P. Blount, bronze medal in senior anatomy, silver medal in physiology, bronze medal in practical physiology, and a special prize for all-round excellence in physiological work; F. W. Priestley, bronze medal in histology; A. Malaga, bronze medal in physiology; and A. Ratter, bronze medal in zootechny.

J. W. Burgess, silver medal in materia medica and silver medal in hygiene; A. J. Kennedy, B.Sc., silver medal in pathology; J. M. Cummine, bronze medal in pathology; R. Moore, bronze medal in materia medica; A. J. Wilsdon, silver medal in bacteriology; W. M. Mackay, bronze medal in bacteriology; and J. W. H. Holmes, bronze medal in hygiene.

H. Burrow, silver medal in obstetrics, silver medal in medicine, bronze medal in parasitology, best aggregate marks for final year, and £21 prize for the best aggregate for four years; G. B. Brook, silver medal in surgery bronze medal in medicine, and silver medal in clinique; J. E. Wilson, bronze medal in surgery and bronze medal in obstetrics; A. L. F. Mullen and D. R. Wilson, bronze medals in clinique.—*The Scotsman.*

SOUTH AFRICA AND CATTLE DISEASE.

News has, says *The Times*, been received by the High Commissioner for the Union of South Africa that an embargo has been again imposed against the introduction from Great Britain and Ireland into the Union of South Africa of cattle, sheep, pigs, and goats, on account of the recent outbreak of foot-and-mouth disease in Scotland and England.

DIVISIONAL REPORT.

South-Eastern Division.

Meeting at Tunbridge Wells.

The popularity of papers of clinical interest was again exemplified at a meeting of the South-Eastern Division, which was held at Tunbridge Wells, on Wednesday, June 9th, 1926, when a large number of practitioners assembled at the Castle Hotel, to hear and discuss the "Remarks on Stomach Diseases of Cattle," with which they were favoured by Mr. Henry Taylor, of Haywards Heath, while the Address of the President, Mr. J. B. Dier, of East Grinstead, was a further highly-appreciated feature.

The gathering was attended by the following, in addition to those already named: Messrs, J. G. Cattell, F. Crowhurst, R. A. Edwards, H. S. Head, F. Marks, E. Morgan, F. L. Munslow, C. W. Perrin, L. P. Pugh, C. Roberts, C. Rose, F. Warren and A. Whicher, together with the Hon. Secretary. *Visitors.*—Messrs. C. Elphicke, H. Gooch, W. D. Halfhead, W. S. E. Morton and J. C. Wallis.

The minutes of the previous meeting, having been published in the *Record*, were taken as read, and were signed as correct.

Correspondence.

(1) The receipt of apologies for unavoidable absence was announced from Mr. C. Crowhurst, Major G. W. Dunkin, Mr. C. Hinton, Mr. T. F. Hogben and R. F. Horton.

(2) From Major Dunkin, in the course of which he stated:—"I was particularly desirous of attending this meeting and had, in fact, stated openly at the last meeting of the Central Society that I would do so, for I much wanted to speak on the matter of a letter which you will have received from that Society on the subject of installing an X-ray apparatus at the R.V.C., London.

"The project was first mooted at the 'Central,' and a Committee, of which I am chairman, has been appointed to go into the matter. We have got as far as recommending a certain apparatus and I have reason to think that the 'Central' will subscribe about £100 towards its cost.

"It is hoped that, if this comes to maturity, the installation of such an apparatus will be a great asset to members of the profession, for they will be able to get special terms instead of paying high figures which in many instances might be prohibitive.

"It i hoped that the apparatus will be of the so-called portable type so that it could be transported to any part of the country should this be necessary as might be the case where it needed for the larger animals.

"As a member of the S.E.V.A. I trust the meeting will favourably consider the project and I feel certain that if there are any points which, in your view, require more explanation this will be readily forthcoming from the Secretary of the 'Central'

The Hon Secretary having informed the meeting that he had failed to trace the receipt of any communication from the Central Division on the matter of the provision of an X-ray apparatus at the Royal Veterinary College, consideration of the subject was accordingly deferred

(3) From Professor J. B. Buxton, thanking the Division for his appointment as their representative to the Council of the Victoria Veterinary Benevolent Fund.

(4) From Major Dunkin, expressing his appreciation of his re-election as the Division's representative upon the Council of the N.V.M.A.

(5) From the Secretary of the N.V.M.A. in regard to the holding of Branch meetings of the Association with a view to enabling the Branches to function, and proposing that the Division should consider relinquishing one of their ordinary meetings in favour of such a meeting.

The Hon. Secretary: This matter will be dealt with by a committee, as suggested in the letter of the "National," and it is not, I think, advisable or useful for us to take action until we know the arrangements likely to be made by that Committee. The Southern Branch, to which we belong, has a very large number of Divisions and it is extremely difficult to say where a meeting should be held with any hope of securing their adequate representation. The meeting approved of the suggestion that discussion of this subject should be held over pending receipt of the recommendations of the Committee of the N.V.M.A.

(6) From the Secretary of the Royal Sanitary Institute, inviting the Division to appoint representatives to the Jubilee Congress of the Institute to be held in London from July 5th to 10th. It was agreed to request Major Dunkin to represent the Division, Mr. Bell, of Catford, to serve in the event of Major Dunkin's inability to do so.

New Members.—The following gentlemen were elected as members of the Division:—Messrs. P. Harnett (Ashford), F. L. Munslow (Rye) and H. Taylor (Haywards Heath).

Nominations.—Mr. W. D. Halfhead and Captain W. S. E. Morton were nominated to membership.

President's Address.

The President (Mr. J. B. Dier), who was received with applause, then submitted his address from the Chair, as follows:—

Gentlemen,—I must first thank you for the honour you have conferred on me by electing me President of this Division. When it was offered to me, I felt doubtful about accepting, as I feel sure there are other members of the Division more capable than I of filling the position.

As I was promised the support of all the Council and the Division, however, I trust they will be regular attendants at our meetings. It will be my earnest endeavour to do all I possibly can for the Division during my year of office. I desire to deal briefly with the advance the profession has made since I first entered College in 1886.

At that time, we were all studying to become general practitioners, there being no specialists outside the colleges. Now we have specialists on different subjects, also research laboratories, the establishment of which is, in my opinion, a great advance in the right direction.

But it is necessary for the general practitioner to work hand in hand with the Research Institutes for the best results to be obtained.

Some diseases met with in my student days are now stamped out in this country, viz., contagious pleuro-pneumonia, rabies and glanders, while great improvement has been made in the treatment of others, especially milk fever, thanks to the researches of Schmidt of Kolding; also in vaccine and serum therapy. Horses have been replaced considerably by motor traction, but there has been a great increase in the number and value of dairy cattle. The majority of our clients are better educated than in the past and appreciate the services of a qualified veterinary surgeon in preference to the registered practitioner or "quack."

I still think there is a brilliant future for the veterinary profession in preventative as well as in curative medicine, especially if the Ministry of Health recognises the services of the profession under the Public Health Meat Regulation Order and Milk and Dairies Acts.

I feel strongly on the question of pupilage. In my opinion, every student who intends to become a general practitioner, should spend at least twelve months in a large mixed practice before entering college, and should prove himself to be a lover of animals and be endowed with patience and tact.

Every country practitioner should be able to castrate any of our domestic animals and thus do away with the travelling castrator, who frequently take on the treatment of milk fever cases and the calving of cows.

I will not detain you with any further remarks as I am sure you are anxiously waiting for the interesting paper from my colleague and neighbour, Mr. H. Taylor.

The President was, on the proposition of Mr. F. Crowhurst, seconded by Mr. Whicher, cordially thanked by the meeting for his address, Mr. Whicher expressing the earnest hope that, as the President had asked, not only the Council, but the whole Society, would rally round him and make his year of office a "record" success.

The President called upon Mr. H. Taylor to read his paper, "Some Remarks on the Diseases of the Stomachs of Cattle." Mr. Taylor's paper produced a good discussion, which was opened by Mr. Pugh. [Mr. Taylor's paper, together with the discussion, will be found elsewhere in this issue of the *Record*.—Ed.]

Following upon the essayists reply, hearty votes of thanks were accorded both to him and to the President for his conduct in the Chair.

Before acknowledging the compliment, the President said: I have a sad duty to perform in making reference to the death of Sir Stewart Stockman and in asking your approval for the writing by our Secretary of a letter to the Ministry of Agriculture and also to Lady Stockman and relatives expressing our deep sympathy with them in their grievous loss. I had the pleasure of knowing him as a student and a more conscientious man I never met in my life. He will be greatly missed by his colleagues at the Ministry of Agriculture, as well as by the general practitioner. Sir Stewart was, for a man of his position and with such calls upon his time, always singularly easy to approach and he was always willing to give you the best possible assistance and advice in any case that might arise.

The vote of condolence was then carried, the members standing in silence.

Continuing, the President said: Returning to this vote of thanks, it is always a pleasure to me to meet you all and I am very glad to think that you have turned up in such good numbers this afternoon. I trust that in future meetings we shall secure an even larger attendance.

The company then adjourned to tea on the invitation of the President.

Next Meeting.—It was agreed to hold the next meeting of the Division at Maidstone and it was hoped that Major Dunkin would be able to address the meeting on some interesting subject.

H. P. Hogben, Hon. Secretary.

New Rates of Pay for the Royal Army Veterinary Corps.

A Royal Warrant issued on June 28th makes provision, as from 1st July, for certain increases in the rates of pay and retiring gratuities, and for an improvement in the conditions of promotion and retirement of officers of the Royal Army Veterinary Corps.

The amended daily rates of pay are as follows:—

Old Rates.

	£	s.	d.
Lieutenant	1	0	0
Captain	1	5	0
Captain, after 2 years' service as such ...	1	7	6
Major	1	13	0
Major, after 5 years' service as such ...	1	19	0
Lieutenant-Colonel	2	9	0
Colonel	2	15	0

New Rates.

	£	s.	d.
Lieutenant	1	0	0
Captain	1	5	0
Captain, after 4½ years' service as such ...	1	7	0
Captain, after 6½ years' service as such ...	1	9	0
Major	1	11	0
Major, after 3 years' service as such ...	1	13	0
Major, after 6 years' service as such ...	1	16	0
Major, after 8 years' service as such ...	1	19	0
Lieutenant-Colonel	2	9	0
Lieutenant-Colonel, after 3 years' service as such	2	10	0
Colonel	2	15	0

An officer of the Royal Army Veterinary Corps will be eligible for promotion to captain after 3½ years'

(*Continued at foot of first column next page.*)

NOTES AND NEWS.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

July 13th.—R.C.V.S. Oral Examinations commence in London.
„ 15th.—Meeting of the Western Counties Division at Taunton.
„ 16th.—Meeting of the North Wales Division at Owen Glyndwr Hotel, Corwen.
„ 16th.—Meeting of the Mid-West and South Wales Division at Cheltenham.
July 27th-30th.—N.V.M.A. Congress at Dublin.

Travelling Facilities for the Dublin Congress.

Provided that a sufficiently large number of members advise us, arrangements can be made for a special saloon to be attached to the 8-30 a.m. boat train from London (Euston) to Holyhead on Monday, July 26th, for those attending the Dublin Congress. It is hoped that members intending to travel by this train will notify the General Secretary without delay, in order that the final arrangements may be carried through. Although the Association has not been able to secure special fares this year, Tourist Tickets, which are slightly cheaper than the Ordinary Tickets, can be obtained from most stations. Members can, however, verify this upon enquiry at their local stations.

Holyhead and Kingstown Mail Service.

		Weekdays. Day Service. R.	Weekdays. Night Service. SS.	Sunday. Night Service. SS.	
		a.m.	p.m.	p.m.	
London (Euston)	dep.	8.30	8.45	8.45	
		p.m.	a.m.	a.m.	
Chester	arr.	12.15	12.35	12.35	
Chester	dep.	12.23	12.43	12.43	
Holyhead	arr.	2.7	2.25	2.25	
Holyhead Pier depart by steamer about		2.30	2.55	2.55	Mondays
Kingstown Pier	arr.	5.25	5.50	5.50	Mondays
Dublin (Westland Row)	„	6.0	6.35	6.35	Mondays

R=Restaurant Cars. SS=Sleeping saloons.

Congratulations to the Veterinary College of Ireland on the obtaining by two of its graduates, Major R. F. Stirling and Mr. J. H. M. Hughes, of the first and second places respectively in the recent D.V.S.M. examination.

(*Continued from previous page.*)

service as a veterinary officer (instead of five years as at present), and to major after 12 years' service as a veterinary officer (instead of after 10 years' service in the rank of captain as at present).

An officer will be eligible to retire with a gratuity of £800 after 7 years' service, of £1,800 after 15 years' service, and £2,500 after 18 years' service, instead of with £1,000 after 10 and with less than 20 years' service.

Personal.

Appointment.—Mr. P. J. L. Kelland, M.R.C.V.S., has been appointed Deputy Chief Veterinary Officer at the Ministry of Agriculture and Fisheries, in succession to Mr. J. J. R. Jackson, M.R.C.V.S., now Chief Veterinary Officer.

Birth.—June 24th, at 49 Arundel Avenue, Liuerpool, to Gladys, wife of James H. White, M.R.C.V.S., a son.

Major R. F. Stirling is returning to his post in Nagpur, Central Provinces, India, by the SS. China, which left Tilbury yesterday.

Date of New Clean Milk Regulations Put Back.

The new regulations for securing cleanliness in the handling of milk, which were published in draft form in March, and were originally intended to come into force at the commencement of this month, will not become operative until later in the year. The Milk and Dairies Order, which embodies the regulations, has not yet been issued.

The Minister of Health stated recently in reply to a question that, while he could not give any precise date for the issue of the Order, he hoped to be able to make the Order very shortly.

Army Veterinary Service.

London Gazette—War Office—Territorial Army.

June 22.—Capt. W. H. Wortley, late R.A.V.C. (S.R.), to be Capt. (June 23).

Regular Forces.

June 29th.—Maj. (Bt. Lt.-Col.) H. S. Mosley, D.S.O., to be Lt.-Col. (June 28th).

The undermentioned Capts. to be Majs. (March 29th) :—J. J. Mills, and remains secd. ; A. G. Lalor.

The following Lts. to be Capts. (June 9th) :—H. Jerrom, E. O'Kelly, and remains secd. ; L. R. Swifte.

Memoranda.

Col. F. W. Wilson, C.M.G., late R.A.V.C., having attained the age fixed for compulsory retirement, is placed on ret. pay (June 28th) ; Lt.-Col. A. J. Williams, D.S.O., R.A.V.C., to be Col. (June 28th).

Obituary.

Major-General Sir R. Pringle.

Major-General Sir Robert Pringle, Director-General of the Army Veterinary Service from 1910 to 1917, died at Fairbourne, Farnham, Surrey, on Wednesday, at the age of 70.

The son of Mr. Gilbert Pringle, of Stranraer, General Pringle entered the Army Veterinary Department in 1878, and the next year was seeing active service in the Afghan War. He took part in the Wuzeree Expedition of 1881 and in the Zhob Valley Expedition of 1884, and served in South Africa in 1900 and 1901, gaining mentions in dispatches and the D.S.O. He was appointed Principal Veterinary Officer to Sir Evelyn Wood when Salisbury Plain was taken over. As Sir Evelyn Wood said at the time, there were but one mule and three engineers when they arrived on the ground. When the 3rd Army Corps station was established, Pringle was selected as Inspecting

Veterinary Officer in India, where he served under General Sir Bindon Blood during the Kitchener *régime*, and he did great work for Northern India and the Frontier. About the time of Kitchener's return he left India, and his high credentials secured for him the appointment of Principal Veterinary Officer at Aldershot under Sir Horace Smith-Dorrien, who also had come from India. At Aldershot the sick lines and hospital treatment of horses, and also the farriery, took a fresh lease, and he was soon removed to the War Office, to be Director-General of the Army Veterinary Service under the late Lieutenant-General Sir Herbert Miles.

He was there when the Great War began and he had at the time of the mobilisation only 197 veterinary officers and 322 other ranks. The growth of the Service was enormous, and ended with 1,356 officers and 26,146 other ranks. During the war considerable progress was made in the treatment and prevention of disease, and so sound was the system which General Pringle employed that at home contagious disease disappeared altogether. In France veterinary evacuating stations were formed, motor horse ambulances set up, field veterinary laboratories equipped, and veterinary hospitals fitted up with electric plant. In addition there were established a central veterinary research laboratory, and also a school of farriery, with three branches at home and one in France. The animals on the strength of the Army at this period numbered 800,000. The care of soldiers' dogs was also arranged for by him, both in France and at home, and he caused the comparatively insufficiently trained cold shoers to be supplanted by competent shoeing smiths. All through there was no breakdown in the veterinary arrangements, and, although due credit must be given to the part played by scientific research, nevertheless the low mortality and the high standard of health of the animals was largely the result of the training and management fostered by all ranks of the Army Veterinary Service. There was also very little mortality among the animals on the freight ships and transports. General Pringle left the War Office towards the end of the war, after a most successful holding of his appointment. He was appointed C.B. in 1909, and was created K.C.M.G. in 1917. He was married in 1898 to Sophie, eldest daughter of Mr. G. M. Byres, of Tonley. She survives him.—*The Times.*

MELHUISH, Major F. W., Royal Chambers, Castlereigh Street, Sydney, N.S.W., Australia. Graduated London 26th June, 1888. Died *16th May*, 1926.

KING'S BIRTHDAY HONOURS.

The King's Birthday Honours List, published on Saturday last, contains the name of Colonel Frank Walker Wilson, C.M.G., F.R.C.V.S., Assistant Director of Veterinary Services, Eastern Command, as being a recipient of the C.B. (Military Division), while Alexander Menzies Macfarlane, Esq., M.R.C.V.S., Government Veterinary Surgeon, Malta, is awarded the M.B.E., and the O.B.E. is granted Major William Cecil Lowe, F.R.C.V.S., Royal Army Veterinary Corps, and Major and Brevet-Lieut.-Colonel Charles Edward Steel, Royal Army Veterinary Corps, lately Deputy Assistant Director, Veterinary Services, Northern Command, India.

HUNTS. AGRICULTURAL COMMITTEE AND THE TUBERCULOSIS ORDER.

At a recent meeting of the Hunts. Agricultural Committee reported by *The Peterborough and Hunts. Standard*, the clerk said he was expecting a visit from a tuberculosis inspector, the purport of which he did not know. They had been asked to provide a veterinary inspector under the new Tuberculosis Order, and in their last letter the Ministry enquired whether the County Council would consider the appointment of a whole time officer for the purpose of this Order. At present the Ministry had not paid the council's claim which was sent in at the end of December. This was a serious matter, as the council had had to pay out compensation as well as the inspector's fees.

The Chairman: You will be able to tell him that.

Ald. Grey suggested that the clerk should inform the inspector that the council were very adverse to the employment of a whole time officer.

The Chairman: I agree; I am very much against that. When you get a whole time man he will, very soon, want his salary increased. He will next require a motor car, and he will be always making work.

Ald. Grey: That is your experience?

The Chairman: Yes.

Ald. Grey: I agree with you.

Mr. Brown: He will soon want an assistant to do the work, and a clerk to do the writing.

Ald. Tebbutt: And as with rats, they always leave a few behind.

In reply to Mr. Godfrey, the clerk said more was being paid for veterinary inspection than for compensation.

At Trowbridge County Court on June 18th, Frank Keates, of Bradford-on-Avon, claimed £3 10s. from Herbert Bowles, farmer, Winsley, for services rendered; there was a counter-claim for £1 10s.

For the defendant, Mr. Compton said plaintiff was not entitled to recover, as he was not a registered veterinary surgeon.

His Honour, Judge Gwynne James, said this was a case which came under the Veterinary Surgeons' Act, and was the first of the kind which had ever been before him in the course of 27 years. The plaintiff, formerly a groom, said the defendant asked his advice about a mare which was ill. That advice was given, and plaintiff did certain things to the mare. Assuming that to be correct, plaintiff was unable to recover because the Act dealing with veterinary surgeons' fees stated that no person could recover any fee or charge for performing veterinary operations or giving veterinary advice or attendance unless he was a registered veterinary surgeon. No doubt the object of the Act was to protect animals against treatment by unqualified persons. Plaintiff could, therefore, not recover, and the claim would be struck out.—*Bristol Times and Mirror.*

At Hawick Sheriff Court, on June 16th, Francis Oliver Kenwick, residing at Minto, pleaded guilty through an agent to having conducted a business as a veterinary surgeon at Minto, he not being a person who for the time being was on the register of veterinary surgeons in terms of the Act of 1881.

The agent stated that the accused had been assisting a qualified man in New Zealand, and when he came back to this country he was unaware that it was necessary to register.

The Prosecutor said it was unfair to the profession that men such as the accused should be allowed to hold themselves out as veterinary surgeons when they had no qualification at all.

Sheriff Bailiee said it was a serious thing for a person to hold out that he was a veterinary surgeon when he was not.

The accused was fined £10, with the alternative of one month's imprisonment, half of the fine to got the Royal College of Veterinary Surgeons.—*Edinburgh Evening Despatch.*

CORRESPONDENCE.

Contagious Vaginitis in Cattle.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—After reading Mr. Wilson's paper on the above subject, and its subsequent discussion, as reported in your last issue, I am inclined to the opinion that not sufficient differentiation has been made between the so-called vesicular venereal disease or vesicular exanthema, caused through a "fired" bull, and the commoner and more serious nodular venereal disease or contagious vaginitis. I have seen both diseases and in recent years have had large epidemics of the latter. The former disease has

little effect upon conception and is not hard to cure, but the latter disease is an extremely obstinate and difficult one to cure, resulting in loss to the stockowner through the affected cattle failing to hold to service. The former disease is, in most instances, far more painful, and the vesicles either rupture as vesicles, or become pustular and rupture, in each case leaving an ulcer. The varying lesions encountered in the true contagious vaginitis do not signify that we are dealing with more than one type of the disease, as the lesions tend to become intensified when the cow or heifer, so affected, becomes pregnant. In other words, it appears to remain dormant until copulation and conception occur. There is no doubt but that the bull is the transmitting agent in some cases but, in my opinion, this is comparatively rare, as it is observed not only in heifers before service, but in heifer calves (Williams). The typical lesion in this disease is a " rash " (made up of the characteristic nodule or granules) and this may be localised just inside the vulva, or it may extend forward as far as the os uteri. There may be some discomfort after urination, but this is by no means always the case, and the first thing that makes the stockowner know that something is amiss, is when several of the cattle keep " turning to the bull." In the early stages, the lesions may only involve the sides of the vagina just inside the vulva, or the roof only may be affected, and it not uncommonly starts here before invading the sides and floor. In other cases, the floor only is affected. As already stated, in heifers that have not been put to service, it may remain practically unrecognisable until conception occurs, when it becomes intensified and assumes large dimensions, with a strawberry tinge, or the nodules may increase in number but not necessarily in size, or lose their dirty brownish colour. The mucosa between the nodules itself becomes involved and is injected, red and swollen. From my own experience (I know that it not universal), I have found that cattle affected to any degree will not conceive, although the œstral periods are normal in their frequency and are uninterrupted. As to its connection with abortion, there is a great difference of opinion, but it is interesting to note that whenever sterility and abortion are highly virulent in a herd, the disease is intense ; as Williams states, however, this is merely a bit of interesting evidence, not proof. I have noticed that once a herd becomes infected, the majority, if not all, ultimately become affected. As to treatment, ointments and pessaries I have found to be of very little use. The former are not easy to apply, and the latter are often not retained long enough to be of service (in the case of the cow). I have tried potass. permang., dibromin, zinc and other douche agents with varying and disappointing results. I have found that carbolic and iodine preparations and derivatives only tend to irritate the condition, and the same remark applies to silver and silver derivatives. At one time, I had great faith in protargol, either as a douche or local application, and latterly in stick form. The results, however, have been most disappointing and do not (at least in my hands) bear out the claims made for it by the producers—the treatment, in some instances, appears to me to be worse in its effects than the actual disease. The important thing in these cases is to effect either a speedy cure, or so to diminish the severity of the attack that conception is possible. The most effective method I have found so far has been, in the case of the cow, the following :—

(1) In advanced cases, where the disease has extended some distance up the vagina, first douche well out with a solution of Caporit (Bayer) in lukewarm water. The injection is agitated to distribute it as much as possible over the vaginal walls and is then allowed to escape. Aided, if necessary, with a speculum and electric torch, the vaginal surfaces are freely dusted with white Dimol dusting powder, applied by means of an ordinary rubber powder blower. This is done twice a day.

(2) In the early stages, where the disease is confined to just inside the vulva, the vulva lips are held apart by an assistant and the exposed vaginal surfaces swabbed with a solution as above described, and then dusted with Dimol powder.

So far the results have been highly satisfactory, and herds that had been under treatment with other methods for two or more months, were practically cured in a fortnight, and fit for service.

In the case of the bull, the sheath is first douched out with Caporit solution, and a Dimol pessary inserted, it being impossible to dust Dimol powder on to the penis. I am not going to state that this treatment is specific, but, from the case so far treated, I regard it as a great advance on other methods, and an inexpensive one.

I am recording these observations in the hope that they will stimulate discussion. I do not wish them to be interpreted as implying that I regard myself as an oracle on the subject.—Yours faithfully, J. F. D. TUTT.

1 St. Cross Road, Winchester.
June 29th, 1926.

Free Animal Clinics and their Menace to Veterinary Science.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—All animal clinics should, in my opinion, be conducted on correct and constitutional lines, either by private veterinary hospitals for animals, by public veterinary hospitals for animals supported by public subscription and all under veterinary supervision, or by Government veterinary hospitals attached to our veterinary colleges and supported by Government funds. They should be carried on only for the poorest class of animal owners, who cannot pay full veterinary fees and charges, but who may be able to pay something for medicines and veterinary attendances on their animals. The Government should supply the balance of fees and charges, in order to bring the fees into line with those paid to private veterinary practitioners. The whole question of whether there exist people unable to pay any fees and charges as animal owners requires to be carefully gone into unless there is to be created a state of affairs in which the free clinics will come to compete with the ordinary work done by veterinary practitioners, either directly or indirectly. Veterinary practitioners are seriously handicapped in the matter of advertising, in which the various societies supposed to be looking after the welfare of our domestic animals have a free hand, receiving thereby much public or private support of which they would otherwise be dedeprived. If the funds of these institutions cannot provide veterinary supervision and direction, it is quite obvious that the Government should appoint veterinary surgeons to inspect them regularly in the interests of the animals located in them and of their owners, and in the greater interests of animal and public health. The activities of these various societies for animal protection are becoming a serious menace to veterinary science and practice, and must be carefully watched in regard to their encroachments upon, if not their serious opposition to, the work done by members of the veterinary profession. From my own knowledge of the work done by these societies, of which I have had to complain repeatedly—and apparently without much success—I have come to the conclusion that an Order or Act should be passed to make compulsory veterinary supervision by Government-appointed inspectors, who would visit these places regularly. No human institution would be permitted to carry on on the lines of these animal institutes without strict medical and Government supervision.—Yours faithfully,
J. D. POTTIE, M.R.C.V.S.
Greenock.

The Editor acknowledges the receipt of the following :—
Communications from Messrs. O. V. Gunning, Hamilton Kirk, A. W. N. Pillers and J. F. D. Tutt.

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